

May 22, 1849.

Harpur Gamble, Esq., M.D., in the Chair.

The following papers were read :—

1. DESCRIPTION OF SOME CORALS, INCLUDING A NEW BRITISH CORAL DISCOVERED BY W. MACANDREW, ESQ.

BY J. E. GRAY, ESQ., F.R.S. ETC.

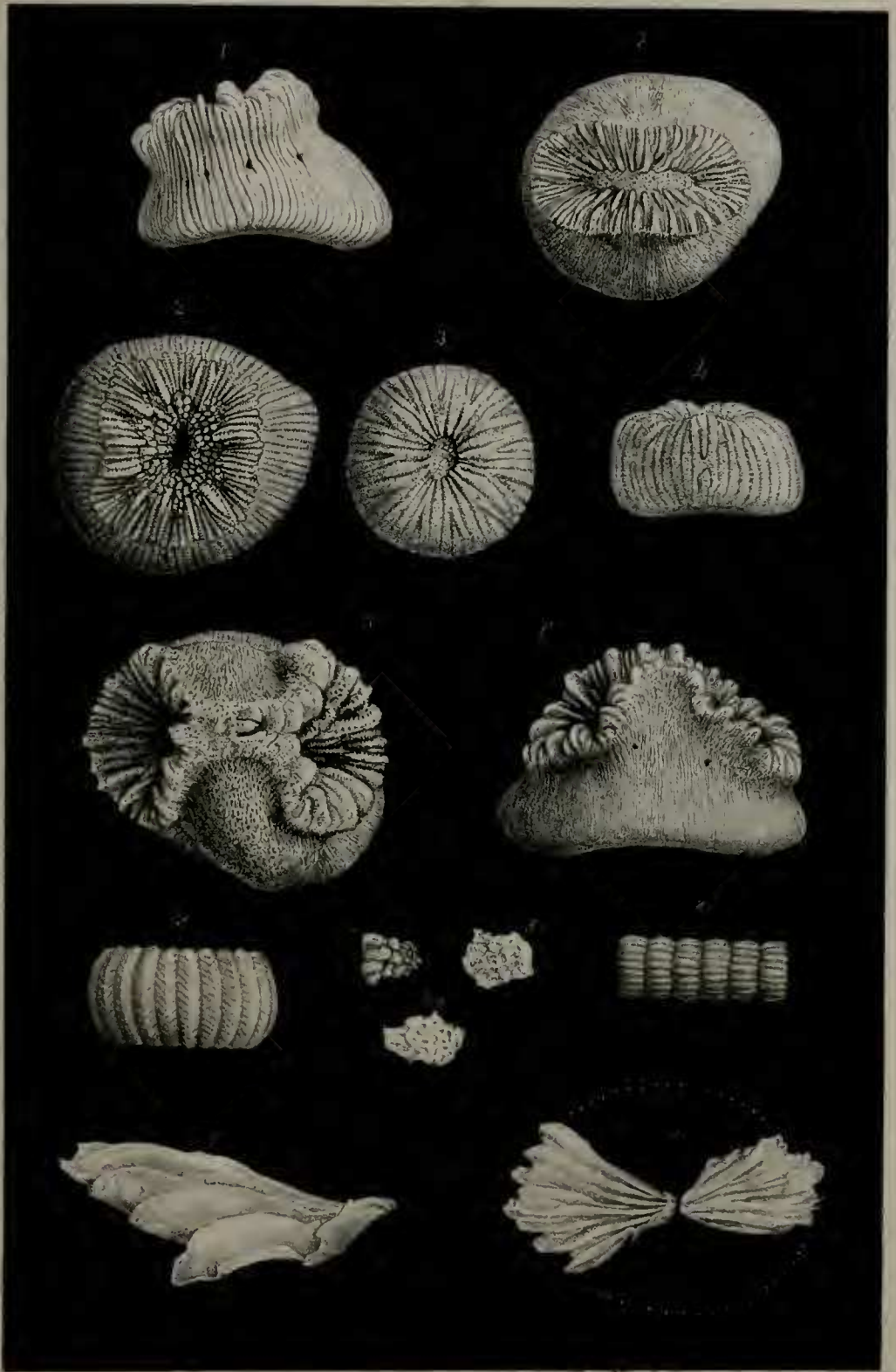
(Radiata, Pl. II.)

As yet only a single living species of recent stony coral has been recorded as inhabiting our coast. I am aware that M. Milne-Edwards and M. Haime have described the Torbay coral as belonging to two species and to different genera, viz. *Desmophyllum Stokesii*, Ann. Sci. Nat. ix. 255. t. 7. f. 12, 12 a, and *Cyathina Smithii*, l. c. ix. 288; but from the varieties in form, and especially in the contraction of the base, which I have seen in specimens on the same stone, I believe the genera and species have been established on very unessential characters.

I may state, that from the observations I have been able to make, I believe that the recent corals are very much more influenced by external circumstances, by the rarity or the abundance of food that the animals are able to procure, and by the roughness or quietness of the water they happen to inhabit, and the stations they may accidentally occupy, than the describers of corals even the most recent are willing to allow. This greatly added to the difficulty of distinguishing the species; and if this is the case with the recent corals which we receive in a good state, how much more difficult must it be to distinguish those only found in a fossil, and often in a worn and imperfect condition!

The British coral here noticed is perfectly distinct from the former, and from any European coral that has come under my examination; and when I showed it to M. Milne-Edwards and M. Haime on their late visit to this country, they stated that it was quite unknown to them, and most nearly allied to an Australasian species. It belongs to the genus *Flabellum*, established by the late M. Lesson in his 'Illustrations of Zoology' in 1831 for a coral from the Japanese Seas. And more lately (in 1841) Dr. A. Philippi established a genus under the name of *Phyllodes* for some fossil allies. Dana, in his work on Zoophytes in 1846, has applied the name of *Euphyllia* to this genus. Quoy and Gaimard referred one of the species to the genus *Turbinolia*.

The only specimen of the coral found by Mr. MacAndrew is unfortunately in an imperfect state, having been broken by the dredge, and I have some doubts if it absolutely belongs to the genus *Flabellum*, as it appears rather to form a more or less circular expanded disk, than a compressed wedge-shaped body. But Messrs. Milne-Edwards and Haime appeared to have no doubt of its belonging to



1 2. 2a HETEROCYATHUS COCHLEA. 3. 3a. 4. H. HEMISPHERICA 5 5a. 6. 7. H. EUPSAMMIDES & VAR.  
8 9. PRIMNOA AUSTRALASIE. 10. 11. FLABELLUM MAC-ANDREWII



that genus when it was shown to them, and I have therefore adopted their opinion until more perfect specimens are found to verify or correct our knowledge. It may be described as follows:—

FLABELLUM MACANDREWII. (*Radiata*, Pl. II.)

Coral expanded, subcircular?; outline irregular, torn, with acute marginal processes; outer surface smooth, polished, as if varnished; septa thin, far apart, very finely crenulated on the edge in three series; the primary plates large, the secondary nearly as large, but much more narrow near the centre; the tertiary plates small, very narrow.

*Hab.* North Sea.

The single imperfect specimen here described was found about twenty-five miles from East Shetland, in ninety fathoms water.

Mr. MacAndrew has kindly presented the specimen to the British Museum collection.

M. Milne-Edwards and M. Haime, in their monograph of the genus *Flabellum*, published in the 'Annales des Sciences Naturelles,' ix. p. 256 (in 1848), describe forty-three species, and divide them into three sections, thus:—

a. Coral becoming free by the progress of age.

\* Coral becoming free by the cessation of the adherence of the pedicel—*Flabellines pedicellés*.

\*\* Coral becoming free by the rupture of its base—*F. tronquées*.

b. Coral always fixed by its enlarged base—*F. fixées*.

The last section is very distinct from the two former, and might almost form a separate genus, for which I should be inclined to retain Dana's name of *Euphyllia*.

The other two sections are separated from one another by very slight characters, which I believe are not even sufficient to separate the specimens of the same species, for some specimens from the same localities retain their narrow base, while in others this part is more or less truncated.

Indeed from the numerous specimens of this genus which I have been enabled to examine in the Japanese boxes which are sent to the Canton market, and from thence to London, and others brought from Northern China by Mr. Fortune, I have little doubt that the species is very variable. I had come to this conclusion, and arranged all the specimens together in one tray in the British Museum, before Messrs. Milne-Edwards and Haime came to examine the corals in the Museum for description in their papers in the 'Annales des Sciences Naturelles' for 1848; and the examination of the characters given by these naturalists for their several species has not induced me to change my opinion, which has, on the contrary, been strengthened by a second comparison.

I may state that we have in the British Museum two very distinct recent species:—1. *Flabellum affine*, Edwards and Haime, n. 31. t. 8. f. 10, from Australia, which has very close plates. 2. *Flabellum Pavoninum*, n. 1, from Japan and North China. And Milne-Edwards and M. Haime have described another from the Falkland

Islands, brought to France by M. Dupetit Thouars, and hence called *Flabellum Thouarsii*, n. 10. t. 8. f. 5, which appears to be distinct from the two former.

From the examination of the numerous specimens of *Flabellum Pavoninum* which I have been enabled to compare and collect, I am inclined to believe that all the specimens which are brought from the Japanese Seas belong to a single species, which I believe will include as varieties the following species described by M. Milne-Edwards and M. Haime, viz.:—

1. *Flabellum distinctum*, n. 2. The specimen in the British Museum, from which this species is described, came from Japan, and not the Red Sea, as stated in the work cited.
2. *F. debile*, n. 23. t. 8. f. 2.
3. *F. Sumatrense*, n. 24.
4. *F. spinosum*, n. 25. t. 8. f. 4.
5. *F. aculeatum*, n. 26. t. 8. f. 3.
6. *F. compressum*, n. 20 = *Fungia compressa*, Lamk.
7. *F. Bairdii*, n. 32. From Japan.
8. *F. Cumingii*, n. 33. t. 8. f. 11.
9. *F. elongatum*, n. 34. t. 8. f. 7.
10. *F. profundum*, n. 35. China (Fortune). *F. spheniscus*, n. 42?
11. *F. crassum*, n. 36. t. 8. f. 8.
12. *F. crenulatum*, n. 37.
13. *F. elegans*, n. 38. From Japan; B. M.
14. *F. Candeanum*, n. 39. t. 8. f. 13.
15. *F. Stokesii*, n. 40. t. 8. f. 12.
16. *F. Owenii*, n. 41. t. 8. f. 9.

I thought at first that these specimens might be separated into two, according to the colour, some being red, with the sides of the coral keeled, and others white, with the sides more or less rounded; *Flabellum Pavoninum*, Lesson, being the type of one species, and *Fungia compressa*, of Lamarck, of the other. But there are specimens red on one side and white on the other, and some on the other hand keeled on one edge and rounded on the other; some with elongated spines on one edge, and spiniferous or only with a slight tubercle on the opposite one; sometimes one edge has two spines and the other only one, or a tubercle, and the extent of the truncation of the base differs in every example.

The same examination has also induced me to believe that the specimen which these authors have described under the name of *Placotrochus lævis*, p. 283. t. 8. f. 15, is only a variety of the same species; and that *Acanthocyathus Grayii*, 293. t. 9. f. 2, is only a specimen of the same species which has lost its compressed form. I have not seen *Rhizotrochus typus*, p. 282. t. 8. f. 16, or *Blastotrochus nutrix*, p. 284. t. 8. f. 14; but from the figures, I have great suspicions that they are only modifications of the same species.

To give some idea of the variations produced by local causes in corals, I may state that the specimens which Messrs. Milne-Edwards and Haime have described under the generic name of *Heterocyathus*, are only specimens of the genus *Cyathus* which have been changed

in form from their having grown attached to a spiral shell which was inhabited by parasitic crustacea. I have specimens showing all the grades of change, from the nearly normal conical form of the genus to the truncated form which has been described as the type of the genus *Heterocyathus*. This form was well-described by Spengler in 'Nova Acta Hafniæ,' i. 240, and noticed by Gmelin under the name of *Madrepora Cochlea*, p. 3763.

Messrs. Milne-Edwards and Haime described two species of this genus under the names of *H. æquicostatus*, t. 10. f. 8, and *H. Roussæanus*, t. 10. f. 9. Of the former he appears only to have seen a single specimen. We have in the British Museum three very distinct species, which may be thus described:—

1. *H. COCHLEA* = *Mad. Cochlea*, Gmelin, S. N. *H. æquicostatus*, Milne-Edwards and Haime, 324. t. 10. f. 8. (*Radiata*, Pl. II.)

Coral subcylindric, hard, white, with narrow, equidistant, distinct grooves, crenulated on the edges; base rather dilated; laminae narrow, sharp-edged, very unequal, grooved on each side, and with crowded columns in the centre of the star.

*Hab.* Chinese Seas.

The holes on the outer surface are large and distinct.

2. *H. HEMISPHERICA*. (*Radiata*, Pl. II.)

Coral subcircular, depressed, subhemispherical, nearly flat below, regularly convex above; sides rounded; plates of star broad-topped, as if truncated, covered on top and sides with very numerous crowded spines and tubercles; centre of star roundish, with small columella.

*Hab.* Chinese Seas.

The plates of this species resemble those figured as belonging to *H. Roussæanus*, l. c. 325. t. 10. f. 9; but the shape of all the two specimens in the Museum, which are nearly similar, is quite distinct from the view of the side of that species.

3. *H. EUPSAMMIDES*. (*Radiata*, Pl. II.)

Coral polymorphous, base flat, sides shelving, sinuous, surface covered with very close, irregular, sinuous, denticulated ridges, and pierced with numerous minute pores; star irregular, compressed or sinuous; laminae narrow, then cribellated on the surface, and with an oblong, elongated, convex, cribellated centre.

Var. star more or less contracted in the centre, forming two more or less distinct roundish stars.

*Hab.* Chinese Seas.

This species is immediately known from the former by the peculiarity of the surface, which is like that of *Caryophyllea ramea*, and by the convex elongated form of the centre of the star.

I have described these three species together on account of their having the same form and habit, but the structure of the surface and the great difference in the form and conformation of the stars induce me to believe that they probably belong to three very distinct families of corals.

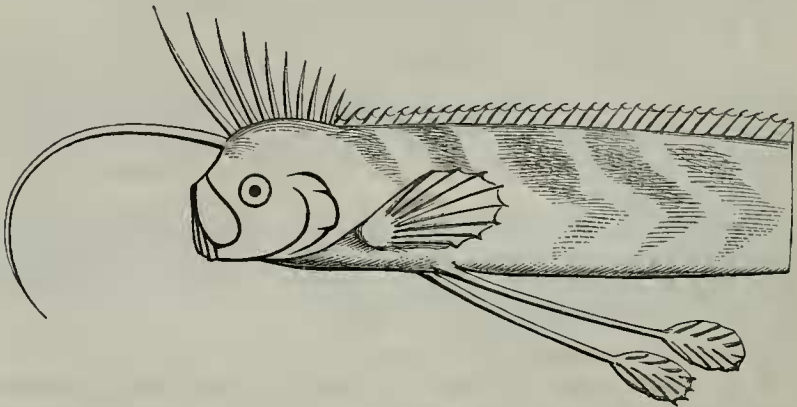
Since I described these corals I have shown the two latter species to M. Milne-Edwards, who states that they had not before come under his observation.

2. ON THE BRITISH SPECIMENS OF REGALECUS. BY J. E. GRAY, Esq., F.R.S. &c.

The occurrence of a specimen of *Regalecus* on the coast of Northumberland, which is now being exhibited in Regent-street, has induced me to communicate the following remarks which I have collected connected with the history of its former occurrence in this country, some of which appear to have escaped the researches of our British naturalists.

Though the materials here referred to are mentioned by M. Valenciennes in the tenth volume of the 'Histoire des Poissons,' the reference is so indistinct and indefinite that it has not enabled British naturalists to discover where they were to be seen.

On a very accurate drawing of a fish of this genus, bound up with other notes on British fishes, at the end of a 4to copy of Pennant's British Zoology of 1776, which is contained in the library of the late Sir Joseph Banks, now forming part of the library of the British Museum, is the following, the head of which is reduced two-thirds in the following figure :—



“On Saturday the 23rd day of February, 1788, was caught near Newlyn Quay, on the sand at ebb-tide, a fish which measured in length 8 feet 4 inches, breadth 10 inches, and thickness  $2\frac{1}{4}$  inches; weight 40 lbs.”

The drawing is inscribed, by another hand, “*Regalecus Glesne*, Ascan. Icon. t. 11; Müller, Z. D. n. 355. *R. remipes*, Nov. Act. Hafn. n. 414;” and on the margin there is added in another hand the following note :—

“N.B. A gentleman who saw this fish informed Capt. Chemming (Chelnwyn?) that the tail was not perfect, and supposed it was originally longer than is represented.”

The body of the fish is silvered, with obscure indications of darker cross-bands, and the fins are all salmon-coloured; the first ray of the dorsal over the eyes is elongated and bent down over the front of the head, and each of the two ventral fins ends in an ovate radiated appendage.

This figure, representing the first British example on record, is certainly the best and most trustworthy representation of the fish that I have seen. A reduced copy of this drawing is here given.

Valenciennes, to whom a copy of this figure has been sent by Mrs. Lee, mentions it in the *History of Fish*, vol. x. p. 365, but has translated *Newlyn Quay* into "*Necolyn Quay*."

Dr. Russell (*Fishes of Coromandel*, i. 29) observes: "In 1796 a fish of this genus was cast on shore in Cornwall, a drawing and description of which were sent to Sir Joseph Banks. It has two ventral cirri, and in the crest of the head resembled the present subject more than any of the others: the tail had been broken off."

Shaw (*Zool.* iv. 198) observes: "It appears from a print published in the year 1798, that a specimen of this fish (*Gymnetrus Hawkenii*) was thrown on the coast of Cornwall in the month of February in the same year. Its length was 8 feet 6 inches, its breadth in the widest part  $10\frac{1}{2}$  inches, and its thickness  $2\frac{3}{4}$  inches. The tail in this specimen was wanting; the colour the same as in the specimen (of *Gymnetrus Hawkenii*) figured by Dr. Bloch."

I have no doubt, as Valenciennes suspected (see *Hist. Poiss.* x. 375), from comparing these accounts with the drawing in the edition of Pennant above quoted, and with Russell's and Shaw's notices, that they are from that authority, and that the two dates in the notes, and the length mentioned by Dr. Shaw, are mistakes of the copyist. I have not been able to find the engraving mentioned by Shaw, which was doubtless made from this drawing, though there is a slight variation in each of the items of the measurements given by the latter author. Could he have considered this drawing as a published print? The writing is so beautifully executed that he might be deceived unless he examined it very carefully.

Mr. Couch, in his paper on Cornish fishes, *Linn. Trans.* xiv. 77, informs us, under

"*Ceil Conin*.—This fish was drawn on shore in a net at Newlyn (Newlyn) in this country in February 1791. The extremity of the tail was wanting; the length of what remained was  $8\frac{1}{2}$  feet, the depth  $10\frac{1}{2}$  inches, thickness  $2\frac{3}{4}$  inches, weight 40 lbs. A coloured drawing of this fish is in the possession of W. Rashleigh, Esq., F.L.S., of Menabilly."

Mr. Couch has seen this drawing. A copy reduced to one-fourth its size is given by Mr. Yarrell in his excellent work on *British Fishes*, vol. ii. p. 221.

I have great doubt if the fish mentioned by Mr. Couch is not also the same specimen as the one described as caught on *23rd of February* 1788, as it is found in the same place, is the same size and weight, &c., and that the date is a mistake. The addition of the two ventral fins was probably a fancy of the artist, like the addition of the tail, the drawing of the fish sent to Sir Joseph Banks being without these fanciful embellishments.

It has been supposed, because the copy of the drawing given by Mr. Yarrell is very like the figure of *Gymnetrus Hawkenii* in Bloch's *Hist. Ich.* xii. t. 433, that the drawing of the Cornish fish was the

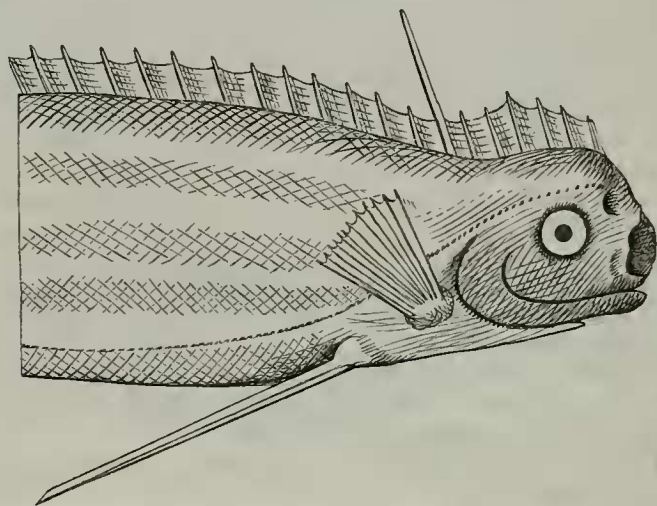


origin of Bloch's figure ; but it is to be observed that Mr. Hawken sent a specimen as well as a drawing of the fish he received from *Goa* ; that his specimen was only  $2\frac{1}{2}$  feet long, and the Cornish specimen  $8\frac{1}{2}$  feet. See Cuvier, *Hist. Poissons*, x. 374.

Dr. Shaw (*Zool.* iv. 197) informs us that the drawing of *Gymnetrus Hawkenii* was communicated by "J. Hawkins, Esq.;" and he added, "I am assured by Mr. Hawkins that this is really the case (the tail being added by the draughtsman), the specimen from which the drawing was taken having been defective in that part."

From this examination I conclude that these accounts are all from the specimen and figure in Pennant.

In the same copy of Pennant's 'British Zoology' occurs the following note and figure, which is here copied two-thirds the size:—



" 'York, March 29, '96.—On Friday last a curious and uncommon fish came on shore at Filey Bay, and was taken by four women ; they sold it to a man who brought it to this city ; it was  $13\frac{1}{2}$  feet in length, rather more than one foot in depth, and not more than 3 inches in thickness. Its skin was smooth and of a silver hue : had no tail, and its fins were the colour of those of the roach or perch. It may be considered as a nondescript, neither Linnæus, Pennant, or any other writers on Ichthyology having given any description of it."

"This paragraph is cut from the York Chronicle of last Thursday, and the enclosed I traced from a drawing by Dr. Burgh, who penned the paragraph and made the following notes on his drawing."—J. F.

"13 feet long, 1 deep, 3 inches thick ; head 7 inches long ; eye  $1\frac{3}{8}$  diam. ; no scales, but very small protuberances, silvered over like the swim of a herring ; these run the whole length in stripes, alternate with others which are bare, and of a light colour.

"The dorsal fin runs the whole way from the head to the other end, at which there is no tail. The dorsal fin is red, like that of a roach or perch ; 6 bronchial rays ; dorsal fin 290 and 13 rays ; the

pectoral 12; ventral 1; no anal. No teeth; a soft tongue. The face and inside of the mouth black. Anus 4 feet 9 inches from the head. Iris a silver-white. He ran on shore at Filey Bay, March 18, 1796; was seen by four women, who took him and sold him to a man who brought him to York, where on March 21 I saw him. Though there was then no caudal fin, it is not clear that he never had one, for there was an appearance of mutilation in its place. The two sides were precisely alike. The eye in the drawing is placed a little too low."—W.B.

This description is mentioned by M. Valenciennes in his 'Histoire des Poissons,' x. 365, under the name of *Gymnetrus Banksii*; nothing is said of the figures which accompanied the letter. I can see nothing in the account or figures to induce me to believe that it is different from the *Regalecus Glesne*, or the specimen from Cornwall.

Mr. Yarrell, in his letter to Mr. Whitehead, printed in Dr. Jacobs's account of the Northumberland specimen, p. 10, gives the description of a specimen which was caught in March 1844, at Crovie, near Macduff, in Scotland, sent by Mr. John Marten of Elgin to Dr. George Johnston and Mr. Yarrell.

It would therefore appear that the specimen from the coast of Northumberland is at least the fourth time that a fish of this genus has been recorded as found on the coast of Britain.

From the comparison of the various descriptions and figures given by the English observers, and those given by Ascanius, Brunnich and Lindroth, I believe there is only a single species yet found in the North Sea, and it appears that that species occasionally comes as far south as the coast of Cornwall.

The great distinction between *Regalecus Glesne* and *R. Grillii* is the number of the rays in the dorsal fin; but as Valenciennes justly observes, that Ascanius's figure represents more rays than he describes the specimen to have had, and in this respect it agrees with the description of *R. Grillii* and with the specimens which have since occurred, I think it probable that the number in the text is a misprint.

Ascanius represents the five longitudinal streaks mentioned in the description of the Filey specimen.

Mr. Whitehead's specimen agrees with the one from Filey, in having the five convex longitudinal lines. These lines are shown in the painting made from the fish when more fresh, but they are not so distinct in the specimen in the fluid; yet they have been rendered more visible than when I first saw it by some glass which had been put on the specimen to sink it in the fluid.

The black bands so well marked in the painting of this fish were also observed in the specimen cast ashore at Crovie, near Macduff, in March 1844, described by Mr. Marten, and in *Gymnetrus Grillii* of Lindroth; and they are indistinctly represented in the drawing of the Cornish specimen.

The ventral fins in Mr. Marten's specimen "consisted of two filaments 3 feet in length; they were fringed with a thin membrane on two sides, and had evidently been broken."

This shows the affinity of the black-striped fish with the *Glesne* of Ascanius and the *S. Grillii* of Lindroth, and I have no doubt that the slight dilatation at the end of the ventral fins in his figure is a mere enlargement of the membranous fringes above described.

The following appear to be the synonyma of this species:—

REGALECUS GLESNE.

1. *Ophidium Glesne*, Ascanius, Mem. Soc. Copenh. iii. 419.  
*Regalecus Glesne*, Ascanius, Icon. ii. t. 11. cop. E. M. t. 358 ;  
 J. J. (J. Jacob), An account of the rare fish, &c. 8vo, 1849,  
 figures Illustrated London News, June 2, 1849, p. 384 fig.  
*Regalecus remipes*, Brunnich in Nya Saml. iii. 414. t. 13. f. 4, 5 ;  
 copied by Walbaum, t. 3. f. 4.  
*Gymnetrus remipes*, Schneider, Syst. Ichth. 482. t. 88, altered  
 from Ascanius; copied by Yarrell, Brit. Fish.  
*Regalec Glesne*, Lacep. ii. 214, 215.  
*Gymnetrus Ascanii*, Shaw, Zool. iv. ii. 1. t. cop. from Ascanius.  
*Le Gymnetre Glesne*, Valenciennes, Hist. Poissons, x. 365 & 366.  
 From the figure of the Newlyn specimen.
2. *Gymnetrus Grillii*, Lindroth, Kongl. Vetensk. Acad. Nya Handl.  
 1798, 288. t. 8 (from a dry fish); Schneider, Syst. Ichth. 482 ;  
 Valenciennes, Hist. Poissons, x. 370.
3. *Le Gymnetrus Banksii*, Valenciennes, Hist. Poissons, x. 365.  
 From the letter respecting the Filey specimen.
4. *Ceil Conin* = *Gymnetrus Hawkensii*, Couch, Trans. Linn. Soc. xiv.  
 77. part.; Yarrell, Brit. Fish. 221. part. From the Newlyn  
 specimen (not Bloch, Ich. xii. t. 423?).
5. *Gymnetrus Northumbrius* (Hancock's MSS. ?), 1849.  
*Gymnetrus* — ? Marten in Jacobs's Account of Rare Fish, 1849,  
 p. 10.
6. *Sea Serpent*, Ladies' Newspaper, 12th May, 1849.

M. Valenciennes, by mistake, thinks that Ascanius described this fish first as *Regalecus*, and then as an *Ophidium*, but 1766 comes before 1772. The specific name of *Glesne* is derived from the name of the place on which the fish was found, near Bergen in Norway.

The generic name of *Regalecus*, characterized in 1772, has the undoubted priority over *Gymnetrus* of Schneider, and therefore ought to be used; neither are quite unexceptionable, the one being a mixture of Greek and Latin, and the latter as conveying a false character, for the fish has ventral fins; but I think it is not desirable to change names which have once been used for such reasons, though it is well to avoid giving names having the first objection, and the second should always be avoided.

The Banksian copy of Pennant is very valuable to the British zoologist, and contains, besides the figures and letters here referred to, some shorter notes, the titles of which I here give, as they may be of use to persons residing at a distance from the library.

Vol. I. Aylmer Bourke Lambert, letter on the Irish Wolf Dog.  
 P. 224. Note on Grouse.

P. 346. Mr. Pearson of Newport Street, account of keeping Swallows through the winter.

Letter from James Hervey of Manchester, on the arrival of Swallows.

P. 352 List of indigenous Mammalia and Birds that are wanting to the British Museum, by W. E. Leach, M.D.

The price of Heronshaws in 1556.

A Fenman's List of the Fowls found in the East Fen.

Vol. II. p. 357. Letter from T. J. Woodward of Walcot, respecting the Heron with the crest.

Vol. III. p. 109.—1. A figure of a short Sun-fish, inscribed "Portrait of a Sun-fish for Sir Joseph Banks, Bart., from his obliged and humble serv<sup>t</sup> Richard Brocklesby."

P. 137.—2. A beautiful drawing of a Launce, by "W. W. Ellis, ad viv. delin. et pinxt. 1779."

P. 138.—3. A letter from L. Morris, accompanied by a pen sketch of the 'Morris' *Leptocephalus*, copied from a blank page in Lewis Morris's Ray Synopsis, by Mr. Lloyd, at Aberystwith, 1786. This note is copied into the edition of 'Pennant's Zoology' for 1812, p. 215, where the editor observes: "The above memorandum is preserved in the copy of the British Zoology in the valuable library of the President of the Royal Society in Soho Square." The editor does not notice any of the other papers in the Banksian copy of Pennant.

P. 178.—4. A note about the name of the *Torse*.

P. 187.—5. Sir William Musgrave's note accompanying a Spotted Goby and a young Angel Fish.

P. 213.—6. Hugh Davies' reply to Donovan respecting the trifurcated Hake, from the North Wales Gazette, March 1810.

P. 213.—7. Moses Griffith in reply to Donovan, from the Cambrian, Dec. 30, 1809.

P. 372.—8. The description of three fish, accompanied by very good figures in India ink, probably by Colonel Montague (? ?).

Viz. 1. *Leptocephalus Morrissii*.—I may observe, that on the continent they apply this name to a species which is much longer and more slender than the one figured by Pennant and Yarrell, and Costa has given the name of *L. candidissimus* to the shorter British species; we have both species from Costa in the British Museum.

2. *Cepola rubescens*.

3. The Variegated Sole, *Solea lingula*. In the MSS. it is stated, "This fish is sometimes taken in Torbay in the trawling-nets. It differs at first sight from the common sole in the edges of the scales being strongly ciliated, and in wanting the numerous small beards that hang from the lower side of the head of the common sort." This appears to be the Red-back described from E. Hanmer's MSS. in the 1812 edition of Pennant, but there is no reference to this figure.

9. The letter from J. F. respecting the fish from Filey Bay, *R. Banksii* of Valenciennes.

10. The drawing of *Regalecus Glesne* from Newlyn Quay.

I may also mention, that in this copy of Pennant the plate 93,

called *Ophidium imberbe*, Brit. Zool. App. iii., is marked in pencil, apparently by Dr. Solander, as being "*Muræna Anguilla*." This probably explains why the figure is replaced in the edition of 1812 by Montague's figure from the Wernerian Transactions, as mentioned by Yarrell, Brit. Fishes, 412 & 414, where these two figures are copied.

Since this paper was read, there has appeared in the 'Annals of Natural History' a full description of Mr. Whitehead's specimen, and an account of some other specimens found on other parts of the English coast.

3. MONOGRAPH OF THE FAMILY LIMNADIADÆ, A FAMILY OF ENTOMOSTRACOUS CRUSTACEA. BY W. BAIRD, M.D., F.L.S. ETC.

(Annulosa, Pl. XI.)

Jean Frederic Hermann, in his 'Mémoire Aptérologique,' published at Strasbourg in 1804, described and figured an Entomostracous crustacean, which from its resemblance to the genus *Daphnia* of Müller and its large size, he called *Daphnia gigas*. About thirty years previous to that time, he tells us, his father discovered a number of these interesting little animals in a deep ditch near Strasbourg filled with clear rain-water and well-stocked with weeds. Struck with their beauty he collected several dozens of specimens, and placing them in a vessel full of water less pure than that which the ditch contained, took them home. By the time he reached his house however they were all dead but one, and he only succeeded in preserving two specimens in spirits of wine. Linnæus had long before that described a species of *Monoculus* in his 'Fauna Suecica,' under the name of *Monoculus lenticularis*, found in Finland. His description is very brief, and Hermann (*père*) considering it probable that his animals might be identical with the species described by Linnæus, preserved the shells or bucklers of the little creatures which had died, and distributed them among his friends and correspondents. He sent some more particularly to the celebrated Müller, at that time engaged in working out the history of the Entomostraca, and entreated him and his other friends to inform him if they considered the specimens he had sent to be identical with the *Monoculus lenticularis* of Linnæus. Müller and his other correspondents all replied that they were not able to inform him, as they did not know Linnæus's insect—and from that time up to the period at which the younger Hermann's 'Mémoire Aptérologique' was published, neither father nor son had ever again succeeded in finding these animals. Nothing farther seems to have been known of any species belonging to the family till M. Adolphe Brongniart in 1820, in the sixth volume of the 'Mémoires du Muséum d'Histoire Naturelle,' published a description of an animal found by him in a pool of fresh water at Fontainebleau, which he considered (I think erroneously) as identical with the *Daphnia gigas* of Hermann. Of this species he formed his genus *Limnadia*, and at the same time entered fully into the details of the structure and habits of the animal. In the 'Bulletin de la Société Impériale des Nat. de Moscou'

for 1830, M. Krynicky has described a third species belonging to the family, which he found in Russia. M. Audouin, in the 'Annales de la Société Entomologique' for 1837, announced to the Society that he had received specimens of another species of the same family, found by M. Bravais, a naval officer, near Oran on the coast of Africa, in a little marsh of brackish water; and in the same year M. Straus Durckheim published a description and good figure of a fifth species found by Dr. Rüppell in Abyssinia. M. Guérin-Ménéville, in the 'Magazin Zoologique' for the same year, 1837, has published the description of a sixth species brought from the Mauritius, collected there by M. Desjardins; and finally, M. Joly, in the 'Annales des Sciences Naturelles,' 2nd series, vol. xviii. 1843, has published an elaborate memoir upon a species collected by him at Toulouse.

From a careful examination of the figures and descriptions given by these authors, it is evident that these animals do not belong all to the same genus. It is perhaps in vain now to attempt to ascertain the species mentioned above as described by Linnæus. Hermann says, the animal described by him "is very likely to be in reality the *Monoculus lenticularis* of Linnæus;" and upon examining the Linnæan cabinet in the possession of the Linnæan Society, I have found one mutilated specimen of a species belonging to this family which bears much resemblance to that figured by M. Hermann. As there is no ticket attached to the specimen, it is impossible now to decide whether this is really the individual originally in the possession of Linnæus; but if it be, it confirms my opinion, derived from comparing the figures and descriptions of the two species given by Hermann and Brongniart, that the latter author is decidedly in error in considering them to be identical. The species found at Fontainebleau is the true representative of the genus *Limnadia*, whilst that of Strasbourg forms the type of another genus. This genus was indicated by Audouin and Straus Durckheim in the same year; the former proposing for the species brought by M. Bravais from Oran, the name of *Cyzicus*; and the latter for that brought by Dr. Rüppell from Abyssinia, the generic name *Estheria*. From the simultaneous publication of these two generic names, it is difficult to decide which should stand; and M. Joly, apparently feeling the difficulty, has proposed a third name, taking as the type the species found by him at Toulouse, and calling it *Isaura*. As M. Audouin merely indicates the genus without giving a description of either genus or species, whilst M. Straus details at full length both generic and specific characters, and figures the typical species, I propose adopting his name and retaining the generic name *Estheria*, a name originally proposed by Dr. Rüppell himself.

The genus *Limnadia* thus at present contains two species:—

1. *Limnadia Hermannii* of Ad. Brongniart.
2. *Limnadia Mauritanica* of M. Guérin.

The genus *Estheria* at present contains three species:—

1. *Estheria gigas*, the *Daphnia gigas* of Hermann, identical with the *Cyzicus Bravaisii* of Audouin and the *Isaura cycladoides* of Joly.

2. *Estheria tetracera*, the *Limnadia tetracera* of Krynicki.

3. *Estheria Dahalacensis*, Straus Durckheim.

To these three species I now propose adding six others, all in the collection of the British Museum.

### Legion BRANCHIOPODA.

#### Order PHYLLOPODA.

#### Family LIMNADIADÆ.

Animal almost entirely enclosed within a buckler or carapace resembling exactly a bivalve shell. Feet all branchial; from eighteen to twenty-seven pairs in number. Antennæ four pairs; the two superior used as organs of locomotion. Eyes two; closely approximated.

#### Genus LIMNADIA, Brongniart.

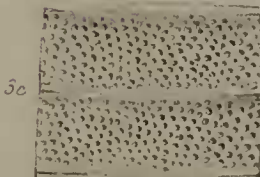
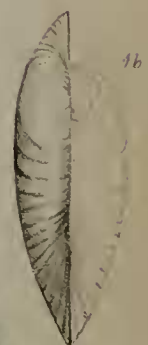
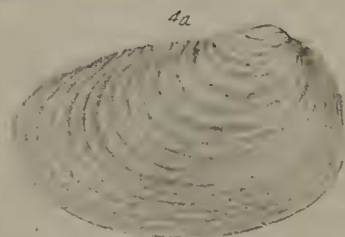
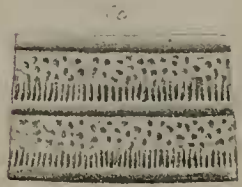
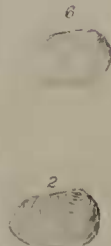
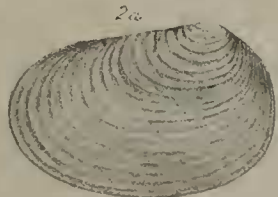
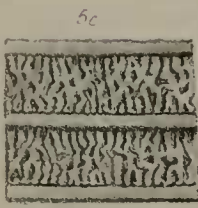
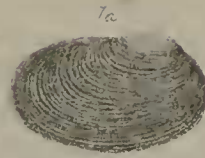
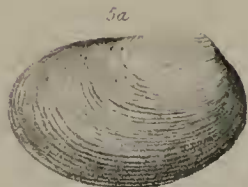
Carapace very large in proportion to the size of the animal, which appears not to fill much more than half of it. Head small, and having a little behind the eye a small pear-shaped body on its dorsal margin. Caudal segment truncate and terminating in two diverging lamellæ, ciliated on their under margin. Small antennæ club-shaped. Jaw foliated. Carapace beautifully transparent, of a whitish colour and very thin and delicate. Valves nearly quite smooth or only showing two or three slight concentric ridges on their anterior margin, and when highly magnified, numerous very minute dots or puncturations.

The animals swim on their back, and no males have ever as yet been observed.

Sp. 1. LIMNADIA HERMANNI. (Pl. XI. f. 1, 1*a*, 1*b*, 1*c*.)

*L. Hermannii*, Ad. Brongniart, Mém. du Mus. d'Hist. Nat. vi. t. 13. f. 1-2, 1820. Desmarest, Consid. gén. sur les Crust. 379. t. 56. f. 1, 1825. Latreille, Cuv. Règn. Anim. iv. 173, 1829. Bosc, Man. d'Hist. Nat. des Crust. ii. 236, 1830. Guérin, Magaz. de Zool. Class 7. t. 21. f. 12, 1837. Lamarck, An. sans Vert. 2nd edit. v. 185 (note). M. Edwards, Hist. Nat. Crust. iii. 362. No. 1. Cuv. Règn. Anim. edit. Crochard, Crustacés, t. 74. f. 1, 1*a*.

Carapace-valves of a rounded oval form, and permitting only the terminal branches of the large antennæ and the tips of the caudal lamellæ to pass beyond their margins; antennules of the length of the peduncles of the large antennæ, club-shaped and crenulated on their upper edge; large antennæ nearly half as long as the body, and having in each branch 12 joints; feet 22 pairs in number; caudal lamellæ of considerable length; carapace of a clear transparent white colour, and nearly quite smooth on its surface. On the anterior half we see two or three concentric striæ or rather delicate ridges running parallel with the lower margin, and when examined by a microscope of considerable power, we can detect the whole surface of the valves covered with numerous minute dots or puncturations. These do not appear raised, but as if they were mere opacities in the otherwise clear transparent shell.



1 LIMNADIA HERMANNI 2 ESTHERIA MELITENSIS. 3 E. POLITA. 4 E. BRASILIENSIS. 5 E. DONACIFORMIS 6 E. BOYSII 7 E. SIMILIS.



